

TRANSFER OF *HETEROTHECA BARTLETTII* TO *OSBERTIA*  
(ASTERACEAE: ASTEREAEE)

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ABSTRACT

*Heterotheca bartlettii*, endemic to Tamaulipas and Nuevo León, México, is transferred to the genus *Osbertia*. The latter has been monotypic for most of its taxonomic history, with the exception of one species recently added to it but subsequently transferred to *Heterotheca*. With the addition of *O. bartlettii*, *comb. nov.*, *Osbertia* again becomes dipytic.

KEY WORDS: *Osbertia*, *Heterotheca*, *Haplopappus*, Asteraceae, Astereae, México

In the process of preparing a taxonomic treatment of the Mexican genera of goldenasters for the "Asteraceae of México" (Turner & Nesom, in prep.) as well as a phylogenetic analysis of the whole goldenaster lineage (Nesom 1991), it has become apparent that *Heterotheca bartlettii* (S.F. Blake) M.C. Johnston (= *Aplopappus bartlettii* S.F. Blake) is in need of taxonomic realignment.

In the original description of (*H*)*Aplopappus bartlettii*, Blake noted that the uniseriate pappus was the single feature that argued for the placement of the species in *Haplopappus* DC. rather than *Chrysopsis* (Nutt.) Ell. He referred the species to *Haplopappus* sect. *Isopappus* (Torr. & Gray) Hall (= *Croptilon* Rafin.), but it is not clear why he did not ally it instead with *Haplopappus* sect. *Osbertia* (DC.) Hall, because he recognized the large difference between *H. bartlettii* and the species of sect. *Isopappus*. Johnston transferred the species to *Heterotheca* Cass., positioning it with phylogenetically close relatives, including some species in which the outer pappus is obscure. Smith (1965) agreed in excluding *Haplopappus bartlettii* from sect. *Isopappus*, accepting its placement in *Heterotheca* pending further study.

Turner & Sundberg (1986) did not mention *Heterotheca bartlettii* in their formal treatment of *Osbertia* DC. They did, however, add a second species, *O. chihuahuana* Turner & Sundberg, to the single original one, *O. stolonifera*

(DC.) E. Greene. In a re-examination of *O. chihuahuana*, Turner (1987) has transferred it to *Heterotheca*, where although it is still somewhat anomalous in habit, it is more naturally situated in its overall combination of characters, particularly in its vestiture.

On the other hand, *Heterotheca bartlettii* differs from *Heterotheca* (including sects. *Heterotheca*, *Phyllotheca* [Nutt.] Harms, and *Ammodia* [Nutt.] Harms) and all of the other genera of the goldenaster lineage in a combination of characters that in turn match those in *Osbertia stolonifera*: uniseriate, long, thin walled, and vitreous trichomes (Type A trichomes, see Nesom 1991a for terminology), herbaceous phyllaries without an indurated keel, reddish tinged ray flowers with noncoiling ligules, subterete, nearly cylindrical achenes with numerous, superficial nerves, and a simple pappus. The achenes of *Osbertia*, with numerous, superficial nerves, are primitive within the goldenaster lineage. The simple pappus and the herbaceous, nearly unkeeled phyllaries are found only in *Osbertia*, but several features of *O. stolonifera* and *H. bartlettii* are shared with species of two closely related genera (Nesom 1991b): the distinctive Type A trichomes occur in the South American genus *Noticastrum* DC. and in all species of *Chrysopsis*; noncoiling ray ligules are found in *Noticastrum* as well as a pair of species of *Chrysopsis*; reddish pigments in the ray corollas occur in *Osbertia* and *Noticastrum*.

An additional similarity between *Osbertia stolonifera* and *Heterotheca bartlettii* is found in their disc corollas, which in both species produce elongated crystals from the very base of the tube to the lower throat; stellate "sand" crystals are not produced at all. The disc corollas of all other genera of the goldenaster lineage typically (and diagnostically) produce elongated crystals (Nesom 1991a), but only in *Osbertia* are "sand" crystals completely lacking.

The chromosome number of *Osbertia stolonifera* has been reported as  $n = 5$  pairs (commonly) and  $n = 4$  pairs (rarely) (see Turner & Sundberg 1986, for numerous records); no chromosome count is available for *Heterotheca bartlettii*, but this information will be significant in further substantiating the comparison between the two species.

In summary, *Heterotheca bartlettii* is such a close morphological match for *Osbertia stolonifera* that the two are best placed in the same genus.

*Osbertia bartlettii* (S.F. Blake) Nesom, *comb. nov.* BASIONYM: *Aplopappus bartlettii* S.F. Blake, J. Washington Acad. Sci. 22:328. 1932. TYPE: MÉXICO. Tamaulipas: Above La Vegonia near San Jose, 1100 m, 3 Jul 1930, *Bartlett 10046* (HOLOTYPE: MICH; Isotype: US!). *Heterotheca bartlettii* (S.F. Blake) M.C. Johnston, Southw. Nat. 2:172. 1958.

Perennial herbs from slender, woody rhizomes, the stems, leaves, and phyllaries prominently invested with long, stipitate glandular hairs, also sparsely and closely villous-puberulent with minute, nonglandular hairs, sparsely long

pilose with vitreous, sometimes flattened and twisted trichomes (Type A) arising from thin bases. Stems 8-25 cm tall, often scapose when the cauline leaves strongly reduced. Basal leaves oblanceolate, persistent, the cauline with sub-clasping bases, when present restricted to the lower third of the stem. Heads 7-10 mm wide, usually solitary on long, naked peduncles 3-10 cm long; receptacles smooth or very slightly foveolate; phyllaries linear-lanceolate, 1 nerved, the nerve sometimes orangish, not keeled, with a herbaceous midregion and indurated margins from base to tip, strongly graduated. Ray flowers 23-33, the corollas 8-10 mm long, usually drying with an abaxial, purplish midstripe, not coiling. Disc corollas 4.0-4.5 mm long, the lobes minutely viscid glandular; style appendages linear-lanceolate, 0.6-0.8 mm long, 1/3-1/2 the length of the style branches. Achenes sparsely short strigose, cylindric, terete to slightly compressed, with ca. 16, slender, evenly spaced, superficial nerves; carpodium asymmetric; pappus of ray and disc achenes uniseriate, of 15-20 barbellate bristles, without an outer series.

Nuevo León and Tamaulipas, México; meadows or openings, oak, oak-pine, or pine woodlands, 900-1800 m; flowering July to September.

Additional collections examined: MÉXICO. Nuevo León: Dulces Nombres, and just E of border into Tamaulipas, 20 Jul 1948, *Meyer & Rogers 2827* (MO); Mpio. Villa Santiago, Cañon Denuncio, Rancho La Bolla, upper canyon, 22 Jun 1935, *Mueller 2008* (MO); Mpio. Villa Santiago, trail between Potrero Redondo and Laguna Sanchez, 16 Aug 1939, *Mueller 2721* (MO); Mpio. Montemorelos, La Trinidad, 19 Aug 1939, *Muller 2854* (LL). Tamaulipas: Sierra de San Carlos, Cerro El Diente, 7 Jun 1985, *Jiménez 268* (TEX); road from Vicente Guerrero toward El Molino, 30 km W of Victoria, 23 Sep 1985, *Yanez 547* (TEX); Sierra de San Carlos, 5 mi S of San Carlos, N side of Bufa El Diente, 15 Apr 1988, *Nesom 6296* (MEXU, TEX).

Standley marked collections of *Mueller 2008* (cited above) as the type of a species of *Chrysopsis*, using the epithet "longipes," but this name apparently was never published.

*Osbertia* is most closely related to the genera *Chrysopsis* of the eastern and south central United States and *Noticastrum* of South America (Nesom 1991a, 1991b). The two species of *Osbertia* are restricted primarily to eastern México and northern Central America, where they have allopatric, nearly contiguous geographic ranges. They can be distinguished by the following contrasts:

1. Plants with short, thick rhizomes and leafy runners producing terminal plantlets; heads 16-30 mm wide; ray flowers 34-150, 15-25 mm long; southern Nuevo León to Guatemala. .... *O. stolonifera*
1. Plants with slender, woody rhizomes, without runners; heads 7-10 mm wide; ray flowers 23-33, 8-10 mm long; west-central Tamaulipas and adjacent Nuevo León. .... *O. bartlettii*

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## LITERATURE CITED

- Johnston, M.C. 1957. *Heterotheca bartlettii* (Blake) M.C. Johnston, new combination. *Southw. Nat.* 2:172.
- Nesom, G.L. 1991a. A phylogenetic hypothesis for the goldenasters (Asteraceae: Astereae). *Phytologia* 71:136-151.
- . 1991b. Union of *Bradburia* with *Chrysopsis* (Asteraceae: Astereae), with a phylogenetic hypothesis for *Chrysopsis*. *Phytologia* 71:109-121.
- Smith, E.B. 1965. Taxonomy of *Haplopappus*, section *Isopappus* (Compositae). *Rhodora* 67:217-238.
- Turner, B.L. 1987. New species and combinations in Mexican *Heterotheca* (Asteraceae-Astereae). *Phytologia* 63:127-128.
- & S.D. Sundberg. 1986. Systematic study of *Osbertia* (Asteraceae-Astereae). *Pl. Syst. Evol.* 151:229-239.